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Climate Change Reports Highlight Impacts and Challenges for California

Leading scientists outline opportunities for solutions

SACRAMENTO – Facing the severe threat of climate change, California policymakers and researchers announced new data to reduce and adapt to climate change in the Golden State.

According to new reports released by the California Natural Resources Agency and the California Energy Commission, state and local leaders now have a wealth of detailed information about adapting to climate change. The findings were announced today at a news conference at the California Emergency Management Agency.

“Significant increases in wildfires, floods, severe storms, drought and heat waves are clear evidence that climate change is happening now. California is stepping up to lead the way in preparing for – and adapting to – this change,” said Secretary for Natural Resources John Laird. “These reports use cutting-edge science to provide an analytical roadmap, pointing the way for taking concrete steps to protect our natural resources and all Californians.”

The new data will help state and local communities to protect public health, grow the State’s economy, ensure energy reliability, and safeguard the environment. Conducted by 26 research teams from numerous academic institutions, the reports comprise the State’s third climate change assessment released since 2006.

“We know that climate change will significantly affect the state’s energy supply and demand,” said Energy Commission Chair Robert B. Weisenmiller. “This groundbreaking research gives us the data and analytical tools we need to better plan, forecast and prepare to meet the state’s energy needs as we face climate challenges.”

This new assessment, guided by various state agencies and independent scientific experts, offers findings on current and projected impacts of climate change on the state’s energy, water, agriculture, coastal regions and public health. The reports provide vital data for taking action, with studies focused on assessing local and regional barriers and opportunities for adapting to a shifting climate. Areas of focus include the San Francisco Bay Area, the Sacramento-San Joaquin Delta and Santa Barbara. The assessment is part of California’s evidence-based statewide approach to reducing the risks of climate change, as directed by the Governor’s Office.

“The Governor is committed to rigorous climate science and understanding the impacts of climate change on California so that we can respond, adapt, and continue to prosper,” said Ken Alex, Senior Policy Advisor to Governor Brown, and Director of the Office of Planning and Research. “Wise investment in our State’s future depends on the science, and is key to strengthening California’s economy and protecting the health of our citizens.”

This assessment follows up on discussions and topics presented at the Governor’s Conference on Extreme Climate Risks and California’s Future, held last December in San Francisco. The new studies will provide a foundation for the 2012 Climate Adaptation Strategy, with completion expected in December 2012.

The reports also offer crucial guidance for effective emergency response.

“CAL FIRE knows what it’s like to battle a fire on the ground, and that firefighters must have the right tools to prevail,” said Chief Ken Pimlott, Director, California Department of Forestry and Fire Protection (CAL FIRE). “These studies provide the tools we need now to further our plans for the risks that climate change brings: more frequent and more intense wildfires, longer fire seasons, and a decline in the health of our state’s conifers.”

State and local firefighters have already responded to more than 1,000 fires this year compared to the same time last year.

“These studies use the best and most innovative science to help us better understand how vulnerable California is to climate change and what we can do to adapt,” said Dr. Susanne Moser, a Santa-Cruz based researcher who contributed to the assessment studies. “It’s clear that reducing climate change risks cannot be done with reducing greenhouse gas emissions alone, though that remains a top priority. These studies show that climate change is being felt in California now and will have more severe impacts in the future unless we plan ahead.”

Findings of the assessment studies include the following.

1) California will continue to get hotter.

- ☐ Statewide average temperatures increased by about 1.7 degrees Fahrenheit from 1895 to 2011. Temperatures are expected to rise by 2.7 degrees above 2000 averages by 2050.
- ☐ Temperatures will rise more in inland areas than in coastal areas. Historically, in Sacramento, temperatures of 101 F or higher have occurred four times a year on average. There may be as many as 25 such days by 2050. If greenhouse gas emissions decrease, that number would decrease.

- ☐ Each degree of increase in mean daily apparent temperature – a combination of temperature and humidity – corresponds to an increase in mortality from various cardiovascular conditions, and elevated risks of hospitalization for at-risk populations. Research focused on Fresno County and the San Francisco Bay Area found minority and low-income residents have significantly lower access to common ways of coping with heat, such as shade from tree canopies and transportation to cooling centers.
 - ☐ Wildfire risk will be higher, possibly more than doubling before 2085 in some areas.
- 2) California will get drier.
- ☐ By the latter half of this century, dry water years are expected to increase by 8 percent in the Sacramento Valley and by 32 percent in the San Joaquin Valley, compared to the latter half of the 20th century.
 - ☐ The state's lack of a groundwater tracking and monitoring system currently hampers appropriate planning.
- 3) California will see accelerated rising sea levels.
- ☐ Sea level along California's coastline rose about 7 inches in the last century. The rate is expected to accelerate. By 2050, sea level could be 10 to 18 inches higher than in 2000.
 - ☐ If sea level rises 16 inches higher than it is now, a 100-year flood would prohibit access to 23 emergency-responder fire stations in the San Francisco Bay Area.
 - ☐ Rising sea levels raise the risk of saltwater intrusion into coastal groundwater supplies, and into the Sacramento-San Joaquin Delta.
 - ☐ As early as 2050, what is currently considered a 100-year-storm may become an annual event. In addition, sea-level rise, combined with wind and waves, will make storms along the coast more destructive.
 - ☐ Scientists have known for years that many of the Sacramento-San Joaquin Delta's island interiors are subsiding at a rate of about 2 inches per year due to compaction, dewatering of peat soils, wind erosion and oxidation, but new satellite data show regionwide subsidence of about 0.2 inches per year that was detected at several levee sites. The new data do not increase the level of risk in the Delta. However, faster than historical rates of sea-level rise along the California coast continue to pose serious risks, whereby many levees could fall below safety design thresholds as early as 2050. Continued monitoring of levees using satellite techniques is a cost-effective approach for levee safety planning.

4) California's power supply is vulnerable.

- ☐ The electrical sector is more vulnerable to climate change than was previously understood. Key transmission corridors are vulnerable to wildfire, and coastal power plants are vulnerable to flooding.
- ☐ Electrical transmission lines lose 7 percent to 8 percent of their transmitting capacity in high temperatures, just when demand rises.

5) California's wildlife and agriculture are threatened.

- ☐ An estimated 83 percent of the state's 121 native freshwater fish species are at high risk of extinction.
- ☐ "Migration corridors" should be protected to allow animal and plant species to relocate to more suitable habitats as the climate changes.
- ☐ The state's agriculture sector, which generates more than \$30 billion a year and provides more than 1 million jobs, can thrive if appropriate crop- and location-specific measures are taken.
- ☐ The most vulnerable agricultural areas in the state are in the Salinas Valley, the corridor between Merced and Fresno, Imperial Valley and the Sacramento-San Joaquin Delta.

The reports can be found online, along with the summary "*Our Changing Climate 2012*," on the California Climate Change Portal at: www.climatechange.ca.gov/adaptation/third_assessment/.

Researchers associated with the following institutions contributed reports:

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